FORMULATION OF AN ACTUARIAL COST MODEL FOR FEDERAL LONG-TERM CARE PROGRAMS

Executive Summary

Submitted to the
Health Care Financing Administration
Contract No. 500-79-0053

September 30, 1981

ICF INCORPORATED 1850 K Street, Northwest,
Suite 950, Washington, D.C. 20006

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EXECUTIVE SUMMARY

A. INTRODUCTION

Due to the aging of the population of the United States and the declining availability of family support services for the elderly, long-term care (LTC) services have become the fastest growing area of health care expenditure growth. Between 1970 and 1981, nursing home expenditures, which account for a major portion of long-term care costs, grew over five-fold from $4.7 billion to $24.5 billion. By 1990, they are projected to increase to $81.9 billion, and they will continue to grow at this dramatic rate through the year 2040.[1]

A substantial portion of long-term care expenditures is currently paid by federal programs--primarily Medicaid and Medicare. These programs accounted for 42 percent of national nursing home expenditures in 1970, and this percentage grew to 57 percent by 1981.[2] These expenditures place growing pressures upon both federal and state budgets and create an increasing need for government agencies to be able to project expenditure growth under current programs. In addition, budgetary pressures and concerns about inappropriate use of LTC services and poor quality care have generated interest in reforming federal long-term care programs. Until now, there have been no means of producing systematic estimates of federal long-term care program use and costs, except on an ad hoc basis.

This report presents a long-term care actuarial cost model that was developed by ICF Incorporated for the Health Care Financing Administration

[1] Mark S. Freeland and Carol E. Schendler, "National Health Expenditures: Short-Term Outlook and Long-Term Projections", Health Care Financing Review, Winter 1981, pp. 105-107.

[2] Ibid., pp. 105-107.

(HCFA) to fill this need. The Long-Term Care Model develops state and national projections for HCFA's Medicare and Medicaid programs and for the Title XX program, which is the other major LTC program within the Department of Health and Human Services. Projections are made for fiscal years 1977 through 1990 of program expenditures (broken down into state and federal shares in the case of Medicaid), utilization, and recipients by the type of long-term care (LTC) services utilized. This model was designed to be a planning and policy analysis tool for analyzing a broad range of issues including:

- estimating the need for long-term care services
- assessing the extent of inappropriate use of long-term care services under Medicare and Medicaid
- forecasting future federal and state expenditures for long-term care services under Medicare and Medicaid
- analyzing the impacts of changes in Medicare or Medicaid eligibility criteria
- analyzing the impacts of changing the services covered by Medicare or Medicaid.

The LTC Model is well-suited for these applications, because it is the only model that integrates state-by-state demographic projections, state and federal LTC program characteristics, and provider characteristics into a single logical framework.

This Executive Summary briefly outlines the structure of the LTC Model and discusses the base case projections through 1990 for Medicaid, Medicare, and Title XX services. In addition, this report summarizes the findings of analyses conducted with the LTC Model to show the potential impacts of several policy options for reducing Medicaid or Medicare LTC costs.

B. GENERAL MODEL STRUCTURE

The Long-Term Care Model forecasts Medicare and Medicaid program trends separately from Title XX program trends. More emphasis is placed upon the former two programs, because they account for about 93 percent of the total federal LTC expenditures for the three programs studied here.

1. Medicare and Medicaid

Forecasting Medicare and Medicaid LTC expenditures and utilization is accomplished through the use of six computer program modules. These modules perform the following steps:

- estimate need for LTC services - Need for services is based upon functional disability, health status, and the availability of informal support systems. Need rates are developed by age and sex using three surveys. These need rates are applied to state population projections in the Need Module to determine the number of people in each state needing six levels of long-term care.

- screen for eligibility - Persons needing long-term care are screened for eligibility for Medicare and Medicaid in the Eligibility Module. Individuals are screened on the basis of age, prior hospital stay, and income. Further screens were made implicitly though calibration factors developed for this purpose.

- estimate quantity of services demanded - In the Demand Module, demand estimates are made in terms of quantity of services or number of recipients depending upon the service.

- estimate supply of services - In the Supply Module, the supply of LTC services was forecast. Historical growth rates were used for home health care and the supply of institutional services was assumed to be constant.

- estimate utilization - LTC utilization is estimated in the Utilization Module to be equal to LTC demand, unless there is an inadequate supply of services. In cases where supply is inadequate, estimates are made of any inappropriate utilization that might result.

- calculate expenditures - Expenditures are calculated in the Expense Module by multiplying utilization by the average unit cost of services. Separate state and federal shares are calculated for Medicaid.

These steps are applied to each state to produce state estimates. State estimates are added together to obtain national estimates. Figure 1 shows the basic interaction between the six modules.

2. Title XX

Title XX projections are made much more simply, because it is a much smaller program, and very little data is available on the program. Our basic approach for Title XX forecasting was to estimate historical expenditures and recipients of LTC services under the program and to extrapolate them into the future. Title XX LTC expenditures were primarily for homemaker and chore services to Supplemental Security Income (SSI) recipients. Estimates of the corresponding expenditures and recipients were made for fiscal years 1976 through 1979. Historical growth rates over this period were then applied to each state.

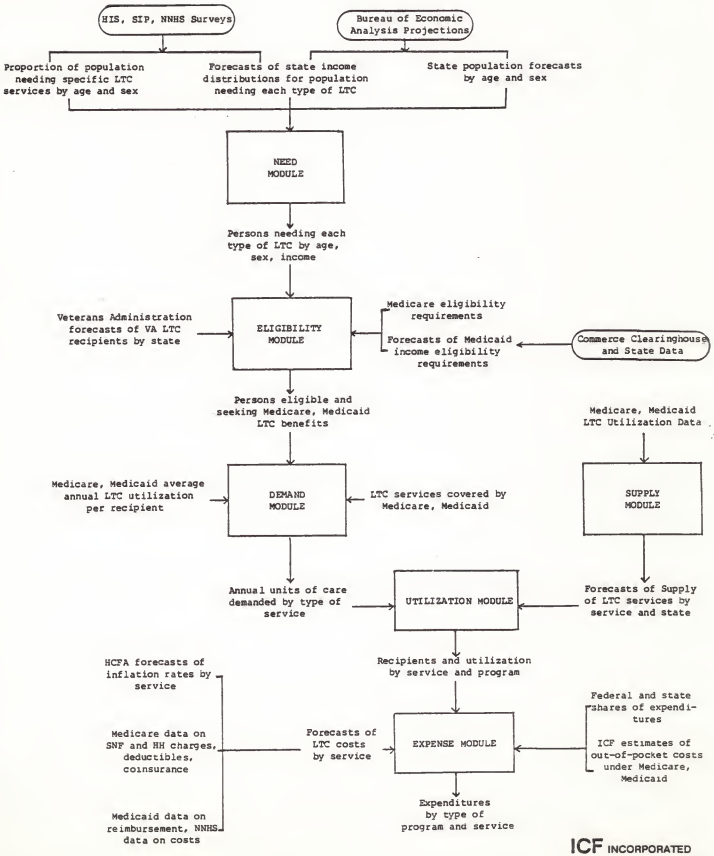
C. BASE CASE MODEL PROJECTIONS

The Long-Term Care Model is designed to project future Medicare, Medicaid, and Title XX long-term care trends under current program policies and under possible program changes. A set of base case projections was run to illustrate Long-Term Care Model estimates under current policies. Key assumptions used in the base case simulation are:

- the quantity of institutional services (SNF, ICF, ICF/MR) available to Medicaid and Medicare patients will not grow under current policies;
- Medicaid income eligibility requirements continue to follow their past trends;
- the average quantity of services used by each Medicaid and Medicare recipient remains at its 1977 level;
- Title XX long-term care programs continue to follow their past growth trends.

FIGURE 1

FLOWCHART OF LTC MODEL CALCULATIONS
USED FOR MEDICAID, MEDICARE PROGRAMS
(To be Applied to Individual States)



These assumptions can easily be changed to reflect anticipated changes at the state and federal level that are presently occurring. However, it is too early to anticipate how recent changes in federal Medicaid legislation and regulations will be implemented.

1. Summary of Base Case Projections

The base case projections of the Long-Term Care Model indicate LTC trends that are likely to develop under current Medicare, Medicaid, and Title XX policies. Tables 1 and 2 present summary information on the base case national projections through 1990. Comparison of base case projections with HCFA estimates for the years 1977 through 1979 indicate that Model projections were reasonable at both the state and national levels. Base case projections show that:

- Medicare, Medicaid, and Title XX long-term care expenditures will grow at an average annual rate of 13.0 percent. Medicaid will grow fastest at about 13.2 percent per year. High rates of growth are primarily attributable to inflation and rapid growth in the use of home health care services. Medicare home health expenditures will expand from about one-half of Medicare LTC expenditures to about two-thirds. We project that Medicaid home health expenditures will grow faster and become comparable to Medicare home health expenditures by the late 1980's, but will account for only 7 percent of total Medicaid expenditures.

- The total number of LTC recipients will grow at an average rate of 4.2 percent per year. This growth will be primarily due to the growth of home health recipients. As with home health expenditures, the number of home health recipients will grow rapidly under both Medicaid and Medicare. The number of Medicaid home health recipients is expected to grow at an average rate of 12.8 percent per year. The number of home health recipients under Medicare is projected to grow at 4.6 percent per year.

- The growth rate of Medicaid LTC expenditures did not vary significantly across states. Growth rates of the number of Medicaid recipients were very different. This occurs, because nursing home expenditures overshadowed all other LTC costs, and under the base case assumptions nursing home expenditures grew primarily as a result of inflation, with little growth in

TABLE 1

BASE CASE LONG-TERM CARE EXPENDITURE PROJECTIONS, 1977-1990
($ Millions)

	1977	1980	1985	1990	Average Annual Rate of Change, 1977-1990
Medicare					
SNF	$ 309	$ 392	$ 670	$ 993	9.4%
Home Health	322	581	1,094	1,895	14.6%
Subtotal	$ 631	$ 973	$1,764	$2,888	12.4%
Medicaid					
SNF	$2,698	$3,975	$7,625	$12,753	12.7%
ICF	2,648	3,948	7,302	12,079	12.4%
Home Health[1]	170	316	877	2,246	22.0%
ICF/MR	890	1,509	2,789	4,971	14.1%
Subtotal	$6,406	$9,748	$18,593	$32,049	13.2%
Title XX	279	454	746	$1,038	10.6%
Total	$7,316	$11,175	$21,103	$35,975	13.0%

[1] Includes personal care expenditures which could not be separated.

TABLE 2

BASE CASE LONG-TERM CARE RECIPIENT PROJECTIONS, 1977-1990
(Thousands)

	1977	1980	1985	1990	Average Annual Rate of Change, 1977-1990
Medicare					
SNF	289	271	271	273	- 0.4%
Home Health	712	975	1,108	1,271	4.6%
Subtotal	1,001	1,246	1,379	1,544	3.4%
Medicaid					
SNF	630	638	648	651	0.3%
ICF	749	758	762	769	0.2%
Home Health	331	485	884	1,579	12.8%
ICF/MR	101	100	102	106	0.4%
Subtotal	1,811	1,981	2,396	3,105	4.2%
Title XX	212	263	383	503	6.9%
Total	3,024	3,490	4,158	5,152	4.2%

utilization. Consequently, the average rate of change in each state was close to the national average rate--13.6 percent per year. The states with the highest rate of growth of the number of recipients were those with the greatest growth of home health care supply. Among the nine states that account for the highest LTC expenditures, the average annual rate of change of the number of recipients was highest in Texas (8.5 percent) and lowest in Illinois (2.4 percent), Michigan (2.6 percent), and Minnesota (3.2 percent).

2. Additional Findings

LTC Model projections also provide useful estimates of the current payment and placement practices of federal LTC programs.

Total nursing home payments for Medicaid SNF and ICF residents, which cannot be obtained from data available to HCFA, have been estimated using the Model. In fiscal year 1981, we estimate that average Medicaid payments per day were $49.98 for SNF care and $34.71 for ICF care. Of these total payments, Medicaid recipients paid 25 percent for SNF care and 20 percent for ICF care. In states without Medically Needy programs, recipients generally paid less than 15 percent of total Medicaid nursing home payments. In states with Medically Needy programs, residents generally paid more than 25 percent.

The Long-Term Care Model also provides estimates of the extent to which persons requiring long-term care are inappropriately placed under Medicare or Medicaid. LTC Model estimates indicate that inappropriate use of hospitals by persons needing SNF care is a growing problem. The LTC Model projects that inappropriate use of hospitals will increase because the supply of institutional services will not increase to meet increasing demand. As a result, the base case projects that 175,000 more Medicare recipients and 965,000 more Medicaid recipients would be inappropriately placed in hospitals in 1990 than in 1977. The corresponding hospital expenditures would be almost $300 million for Medicare and over $1.6 billion for Medicaid in 1990.

The LTC Model also estimates a declining use of nursing home services under Medicaid by persons needing non-institutional care. In our base case estimates, we found that currently a significant proportion of Medicaid ICF residents are persons unable to obtain Medicaid home health services. However, as Medicaid ICF demand grows and ICF supply does not, there will be fewer ICF beds available for use by such persons.

D. POLICY SIMULATIONS

In order to illustrate the use of the Long-Term Care Model for policy analysis, three simulations were run that would reflect possible Medicaid or Medicare changes to reduce state and federal LTC expenditures. The resulting projections were compared with the base case projections to assess the potential impacts of these program changes.

1. Elimination of Medically Needy Coverage

The first policy change simulation was to estimate Medicaid program changes that might result from the elimination of Medically Needy coverage under state Medicaid programs. Table 3 presents a comparison of Medicaid expenditures and recipients from 1981 through 1990 under the base case and under this policy change. This table indicates that elimination of Medically Needy coverage will reduce Medicaid LTC expenditures by about 14 percent ($1.8 billion) in 1981 and by only 1 percent ($0.3 billion) in 1990. The cost reduction impact of eliminating Medically Needy coverage diminishes over time because a rising proportion of the LTC services used by the medically needy are used by the categorically needy, who previously were unable to obtain LTC services due to inadequate supply.

TABLE 3

COMPARISON OF BASE CASE MEDICAID LTC EXPENDITURE AND RECIPIENT PROJECTIONS: CURRENT POLICY VS. ELIMINATE MEDICALLY NEEDY COVERAGE[a/]

Policy	National Medicaid LTC Expenditures, By Year ($ Billions) 1981	1985	1990
Current Policy	$11.3	$18.8	$33.6
Eliminate Medically Needy Coverage	$9.8	$17.9	$33.3

a/ Includes hospital expenditures for persons waiting in hospitals to be placed in SNFs.

2. Increasing Medicare SNF Coinsurance Requirements

Two policy simulations were also conducted to assess the potential effect of increasing federal SNF coinsurance requirements on Medicare LTC costs. One policy option tested would increase the SNF coinsurance rate by 20 percent for each day beyond the twentieth day. The second policy option would apply existing coinsurance rates to all days of a SNF stay, including the first through the twentieth. In our analysis, we did not try to estimate the possible reduction in SNF utilization that might result from such increases in coinsurance rates. This demand elasticity effect is reduced by the fact that there seem to be more persons seeking SNF care than are able to obtain it. Consequently, reductions in utilization of SNF care by those currently receiving care would be replaced in part by additional utilization by new recipients.

Table 4 shows that the 20 percent increase in coinsurance rates will have a relatively small effect on Medicare LTC costs. In 1981, Medicare costs would be reduced by about $20 million. This savings would grow to $60 million by 1990. The projections in Table 4 show that Medicare outlays would be reduced much more under the second coinsurance option which adds coinsurance to the first twenty days. Medicare LTC costs would be reduced by 11 percent in 1981 and by 13 percent in 1990.

TABLE 4

COMPARISON OF BASE CASE MEDICARE PROJECTIONS UNDER CURRENT POLICY AND TWO POLICIES TO INCREASE SNF COINSURANCE a/

	National Medicare LTC Expenditures, By Year ($ Billions)		
Policy	1981	1985	1990
Current Policy	$1.15	$1.80	$3.19
Increase SNF Coinsurance by 20%	$1.13	$1.77	$3.13
Extend SNF Coinsurance to 1-20 days	$1.02	$1.58	$2.78

a/ Includes hospital expenditures for persons waiting in hospitals to be placed in SNFs.

The net reduction in federal government LTC costs could be 8 to 20 percent less than the amounts shown in Table 4 because the increased coinsurance payments for persons eligible for both Medicare and Medicaid would be paid by Medicaid. It should also be noted that increased Medicare coinsurance payments will increase state costs in the form of increased Medicaid payments.

E. IMPLICATIONS FOR COST CONTAINMENT STRATEGIES

Our findings from the projections analyzed in this study have several implications for long run federal and state strategies for containing LTC costs. Specifically, our analysis indicates that:

- Federal cost containment strategies need to focus primarily upon Medicaid LTC costs. Medicaid currently accounts for 10 times as much LTC expenditure as Medicare and this ratio is projected to increase. In addition, Medicaid generally supplements Medicare LTC benefits. Consequently, many cuts in Medicare expenditures will increase Medicaid LTC expenditures.

- Tightening Medicaid eligibility requirements will only reduce Medicaid LTC expenditures in the short run. Under current policies we project that there will be a growing number of persons who are eligible for Medicaid nursing home benefits who will be unable to obtain them because of an inadequate supply of these services. Nursing home expenditures will primarily be constrained by SNF and ICF supply to Medicaid recipients. Consequently, any tightening of eligibility rules may only reduce the number of eligible persons unable to obtain nursing home care, rather than reduce utilization or costs.

- Introduction of coverage of additional non-institutional LTC services is likely to increase Medicaid LTC costs in the long run. Addition of these services would certainly improve the ability of Medicaid programs to meet the LTC needs of persons they cover. However, the LTC model indicates that such additions would primarily add more recipients and expenditures in the future.

Because Medicaid nursing home residents spend nearly all their resources on their care, increased recipient cost sharing cannot be used to significantly reduce costs. Therefore, it seems that much broader strategies may have to be developed in order to contain Medicaid LTC costs. One strategy that needs to be studied is the use of incentives to encourage greater availability of informal support services. If there were more informal support available to persons needing LTC, then need for formal LTC services would decline, reducing total LTC program costs in the long run. This seems to be a basic, and possibly essential, step towards reducing public LTC expenditures equitably.